

REMARKS

Reconsideration and allowance of the above identified application is respectfully requested in light of the above amendments and the following remarks.

To briefly summarize, the claimed invention is directed to a method and apparatus for detecting defects in a non-contacting manner on shot cores and core packets used in the foundry industry. In carrying out the process, the objects are illuminated by at least two light sources, emanating from different directions, and a camera is used for recording each object and the shadows resulting from the illumination.

As now highlighted in the claims, the invention is uniquely applicable to the processing of shot cores and core packets used in the foundry industry. Such products require substantial cooling before they can be measured and inspected by conventional contact procedures, and it is important to be able to quickly evaluate the products after they emerge from their molds and before cooling so that systemic defects in the mold can be corrected before large numbers of defective products are produced. The method of the present invention permits such inspection and thus achieves that goal.

Dependent Claim 35, which was directed to an embodiment wherein the camera images are transmitted to a computer where they are compared with reference data, and which is now incorporated in base Claim 30, was rejected as being anticipated by the prior patent to Roy et al., No. 5,956,134. It is submitted however, that this rejection is untenable, and should be withdrawn, because Roy et al. is from a non-analogous art, namely, the fabrication and inspection of semiconductor devices. One faced with the unique problems associated with the production of shot cores and core packets

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used in the foundry industry, would hardly be motivated to seek a solution from the art relating to the fabrication of semiconductor devices.

Dependent Claim 41, which was not rejected on the prior art, has been rewritten in independent form as new Claim 45. This new claim is also directed the production of shot cores and core packets used in the foundry practice, and it is specific to the brightness adjustment, which takes into account the fact that identical core products may reflect differently, resulting in different measured values, note page 8, lines 28-34 of the specification. It is submitted that this claim is in condition for immediate allowance.

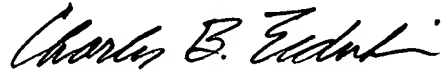
New dependent Claims 46 and 47 are directed to the features described in the specification at page 4, lines 11-33. These features are also not seen to be suggested by the cited prior art.

The base claims, which now incorporate the recitations of original dependent Claim 35, have been amended to overcome the antecedent issue noted by the Examiner in original Claim 35.

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For the reasons set forth above, it is respectfully submitted that all of the pending claims are in condition for immediate allowance, and such action is solicited.

Respectfully submitted,



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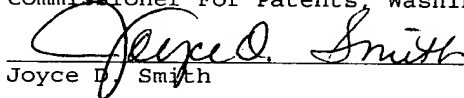
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Date of Deposit November 5, 2002

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Joyce D. Smith

Version with Markings to Show Changes Made:

Claims 30, 34, 36, 37, and 42 have been amended as follows:

30. (Amended) A method of detecting defects on shot cores or core packets used in the foundry industry [workpieces] comprising the steps of

illuminating each shot core or core packet [the workpiece] by at least two light sources from different directions,

recording by means of a camera each [the] illuminated shot core or core packet [workpiece] and the shadows resulting from the illumination to thereby produce recorded data which comprise a recorded image, and

processing the recorded data in a computer, and including processing the recorded image by comparing the recorded image with a record of reference data.

34. (Amended) The method of claim 30, [wherein the recorded data comprises an image, and] comprising the further step of performing a qualitative or quantitative image evaluation on the recorded image.

36. (Amended) The method of Claim 30 [35], wherein the comparing step includes a coarse correlation with the recorded data.

37. (Amended) The method of Claim 30 [35], wherein the recording step includes recording at least two images which are processed in the processing step.

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42. (Amended) The method of Claim 30 [35], wherein the image processing step comprises a defect detection.

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